

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/520,999
Source: PCT
Date Processed by STIC: 12/08/2005

ENTERED



PCT

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/520,999

DATE: 12/08/2005
TIME: 08:23:33

Input Set : A:\ST125.txt
Output Set: N:\CRF4\12082005\J520999.raw

3 <110> APPLICANT: Forschungszentrum Juelich GmbH
 5 <120> TITLE OF INVENTION: NUCLEOTIDE SEQUENCES THAT ENCODE CORYNEFORM BACTERIA FOR
 PROTEINS
 6 PARTICIPATING IN THE BIOSYNTHESIS OF L-SERINE AND METHOD OF PRODUCING
 7 L-SERINE
 9 <130> FILE REFERENCE: 23155
 C--> 11 <140> CURRENT APPLICATION NUMBER: US/10/520,999
 C--> 12 <141> CURRENT FILING DATE: 2005-01-07
 14 <160> NUMBER OF SEQ ID NOS: 19
 16 <170> SOFTWARE: PatentIn Ver. 2.1
 18 <210> SEQ ID NO: 1
 19 <211> LENGTH: 1253
 20 <212> TYPE: DNA
 21 <213> ORGANISM: Corynebacterium glutamicum
 23 <400> SEQUENCE: 1
 24 tctagagccg gagacgtgaa taaaattcgc agtcattcc atcagcgtaa acgcagctt 60
 25 ttgcatggtg agacacctt gggggtaaat ctcacagcat gaatctctgg gtttagatgac 120
 26 tttctgggtg ggggagggtt tagaatgttt ctatgcgcac gccaaaaaccc ggcgtggaca 180
 27 cgtctgcagc cgacgcggtc gtgcctgtt tagacggaca ttccttagtt ttccaggagt 240
 28 aacttgtgag ccagaatggc cgtccggtag tcctcatcgc cgataagctt gcgcagtcca 300
 29 ctgttgacgc gttggagat gcagtagaaag tccgtgggt tgacggacct aaccgcccag 360
 30 aactgcttga tgcagttaaag gaagcggacg cactgctcg tgcgttctgt accactgtcg 420
 31 atgctgaagt catgcgcgt gccctaact tgaagatcg tggcgtgccc ggcgtggct 480
 32 tggacaacgt tgacatccct gtcgccactg aagctggcgt catggttgtt aacgcaccga 540
 33 cctctaataat tcactccgt tttgagcacg caatttttt gtcgtgtct actgctgcc 600
 34 agatccctgc tgctgtgcg acgctgcgtg agggcgagtg gaagcggctt tcttcaacg 660
 35 gtgtggaaat tttcgaaaaa actgtcggtt tcgtcggtt tggccacatt ggtcagttgt 720
 36 ttgttcagcg tttgtcgct ttggagacca ccattttgc ttacgatct tacgtaacc 780
 37 ctgctcggtc ggctcagctg aacgttgagt tggttgagtt ggatgagctg atgagccgtt 840
 38 ctgactttgt caccattcac ctccctaaga ccaaggaaac tgctggcatg tttgatgcgc 900
 39 agtccttgc taagtccaaag aaggccaga tcatcatcaa cgctgctcg ggtggcctt 960
 40 ttgtatgagca ggctttggct gatgcgattt agtccggta cattcgtggc gctggttcg 1020
 41 atgtgtactc caccgagccct tgcaactgatt ctcccttggt caagttgcct cagttgtt 1080
 42 tgactcctca cttgggtgtc tctactgaag aggctcaggta tcgtgcgggt actgacgtt 1140
 43 ctgattctgt gtcaggcg ctggctggcg agttcggttgc gatgctgtt aacggttccg 1200
 44 gtggtcgcgt gggcgaagag gttgctgtt ggtatggatct ggcttaagga tcc 1253
 47 <210> SEQ ID NO: 2
 48 <211> LENGTH: 1607
 49 <212> TYPE: DNA
 50 <213> ORGANISM: Corynebacterium glutamicum
 52 <400> SEQUENCE: 2
 53 tctagagccg gagacgtgaa taaaattcgc agtcattcc atcagcgtaa acgcagctt 60
 54 ttgcatggtg agacacctt gggggtaaat ctcacagcat gaatctctgg gtttagatgac 120
 55 tttctgggtg ggggagggtt tagaatgttt ctatgcgcac gccaaaaaccc ggcgtggaca 180

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/520,999

DATE: 12/08/2005
TIME: 08:23:33

Input Set : A:\ST125.txt
Output Set: N:\CRF4\12082005\J520999.raw

```

56 cgtctgcagc cgacgcggtc gtgcctgttg tagacggaca ttcctagttt ttccaggagt 240
57 aacttgtgag ccagaatggc cgtccggtag tcctcatcg c gataagctt gcgcagtcca 300
58 ctgttgacgc gcttggagat gca gtagaa g tccgttgggt tgacggacct aaccgcccag 360
59 aactgcttga tgcagttaa g gaagcggacg cactgctcg tgcgttctgt accactgtcg 420
60 atgctgaagt catcgccgct gcccctaact tgaagatcg tggcgtgcc ggcgtggct 480
61 tggacaacgt tgacatccct gtcgcaactg aagctggcgt catggttgt aacgcaccga 540
62 cctctaata tcaactccgct t g t g a g c a c g a c g caatttttt gctgtgtct actgtcgcc 600
63 agatccctgc tgctgatgcg acgctgcgtg agggcggatg g a a g c g g t c t t c a a c g 660
64 gtgtggaaat tttcgaaaaa actgtcggt t c g t c g g t t t g g c c a c a t t g g t 720
65 ttgctcagcg tcttgcgtgc tttgagacca ccattttgc ttacgatcct tacgtaacc 780
66 ctgctcgatgc ggctcaagtcg aacggttggatg tgggttggatg gatgagctg atgagccgt 840
67 ctgactttgt caccattcac cttccctaaga ccaaggaaac tgctggcatg tttgatgcgc 900
68 agctccttgc taagtccaa g a a g g g c c a g a t c a t c a a c g c t g c t c g t g g t g c c t t g 960
69 ttgatgagca ggctttggct gatgcgattt gatccggatc cattcgtgcc gctgtttcg 1020
70 atgtgtactc caccgaggct tgcactgtt ctccttggtt caagttgc t c a g g t t g t t g 1080
71 tgactcctca cttgggtgct tctactgaa aggctcagg t c g t g c g g g t a c t g a c g t t g 1140
72 ctgattctgt gctcaaggcg ctggctggcg agttcgtggc gatgatgtt aacggttccg 1200
73 gtggtcgcgt gggcgaagag gttgtgtgtt gatggatct gctcgcaag cttggcttc 1260
74 ttgctggcaa gcttgcgac g c c g c c c a g t c t c a t t g a g t t g a g g c t c a g g c g a g c 1320
75 tttctccga gcaggctcgat gcaacttgggt t g t c g c g t g t c g t g g t t g t t c t c c g g a a 1380
76 ttatcgaaga gtcgttact ttcgtcaacg ctcctcgcat tgctgaagag cgtggcctgg 1440
77 acatctccgt gaagaccaac totgagtctg ttactcaccg ttccgtccctg caggtaagg 1500
78 tcattactgg cagcggcgcg agcgcactg ttgttggc cctgactgtt cttgagcgcg 1560
79 ttgagaagat caccggcatac aatggccgtg gctggattt aaggatcc 1607
82 <210> SEQ ID NO: 3
83 <211> LENGTH: 1280
84 <212> TYPE: DNA
85 <213> ORGANISM: Corynebacterium glutamicum
87 <400> SEQUENCE: 3
88 tctagagccg gagacgtgaa taaaattcgc agtcattcc atcagcgtaa acgcagctt 60
89 ttgcattgtg agacacctt gggggtaaat ctcacagcat gaatctctgg gttagatgac 120
90 tttctgggtg ggggagggtt tagaatgttt ctatcgac g c c a a a a c c c g c t g g a c a 180
91 ctgttcgcgc gacgcggtc gtgcctgttg tagacggaca ttcctagttt ttccaggagt 240
92 aacttgtgag ccagaatggc cgtccggtag tcctcatcg c gataagctt gcgcagtcca 300
93 ctgttgacgc gcttggagat gca gtagaa g tccgttgggt tgacggacct aaccgcccag 360
94 aactgcttga tgcagttaa g gaagcggacg cactgctcg tgcgttctgt accactgtcg 420
95 atgctgaagt catcgccgct gcccctaact tgaagatcg tggcgtgcc ggcgtggct 480
96 tggacaacgt tgacatccct gtcgcaactg aagctggcgt catggttgt aacgcaccga 540
97 cctctaata tcaactccgct t g t g a g c a c g a c g caatttttt gctgtgtct actgtcgcc 600
98 agatccctgc tgctgatgcg acgctgcgtg agggcggatg g a a g c g g t c t t c a a c g 660
99 gtgtggaaat tttcgaaaaa actgtcggt t c g t c g g t t t g g c c a c a t t g g t 720
100 ttgctcagcg tcttgcgtgc tttgagacca ccattttgc ttacgatcct tacgtaacc 780
101 ctgctcgatgc ggctcaagtcg aacggttggatg tgggttggatg gatgagctg atgagccgt 840
102 ctgactttgt caccattcac cttccctaaga ccaaggaaac tgctggcatg tttgatgcgc 900
103 agctccttgc taagtccaa g a a g g g c c a g a t c a t c a a c g c t g c t c g t g g t g c c t t g 960
104 ttgatgagca ggctttggct gatgcgattt gatccggatc cattcgtgcc gctgtttcg 1020
105 atgtgtactc caccggcct tgcactgtt ctccttggtt caagttgc t c a g g t t g t t g 1080
106 tgactcctca cttgggtgct tctactgaa aggctcaggta t c g t g c g g g t a c t g a c g t t g 1140
107 ctgattctgt gctcaaggcg ctggctggcg agttcgtgcc gatgatgtt aacggttccg 1200

```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/520,999

DATE: 12/08/2005
TIME: 08:23:33

Input Set : A:\ST125.txt
Output Set: N:\CRF4\12082005\J520999.raw

```

108 gtggtcgcgt gggcgaagag gttgctgtgt ggatggatct ggctcgcaag cttggtcttc 1260
109 ttgctggcaa gtaaggatcc 1280
112 <210> SEQ ID NO: 4
113 <211> LENGTH: 1229
114 <212> TYPE: DNA
115 <213> ORGANISM: Corynebacterium glutamicum
117 <400> SEQUENCE: 4
118 tctagagccg gagacgtgaa taaaattcgc agctcattcc atcagcgtaa acgcagcttt 60
119 ttgcatggtg agacacccctt gggggtaaat ctcacagcat gaatctctgg gttagatgac 120
120 tttctgggtg ggggagggtt tagaatgttt ctatcgac gccaaaaacc ggcgtggaca 180
121 cgtctgcagc cgacgcggtc gtgcctgtt tagacggaca ttccatgttt ttccaggagt 240
122 aacttgtgag ccagaatggc cgtccggtag tcctcatcgc cgataagctt gcgcagtcca 300
123 ctgttgcgc gcttggagat gcagtagaaag tccgttgggt tgacggacct aaccgcccag 360
124 aactgcttga tgcagtttaag gaagcggacg cactgctcgat gcttgcgtt accactgtcg 420
125 atgctgaagt catgcgcgtt gcccctaact tgaagatcgat cggtcggtt ggcgtggct 480
126 tggacaacgt tgacatccct gctgccactg aagctggcgtt catgggttgc aacgcaccga 540
127 cctctaataat tcactccgtt tttgagacgcaat tttcttgcgtt gctgctgtct actgctcgcc 600
128 agatccctgc tgctgtatgcg acgctgcgtt agggcgagtg gaagcggtt tcttcaacg 660
129 gtgtggaaat ttccggaaaa actgtcggtt tcgtcggtt tggccacatt ggtcagttgt 720
130 ttgctcagcg tttgtctgcg tttgagacca ccattgttgc ttacgatccct tacgctaacc 780
131 ctgctcgtgc ggctcagctg aacgttgagt tggttgagtt ggttgcgtt atgagccgtt 840
132 ctgactttgtt caccattcac cttccataaga ccaaggaaac tgctggcatg tttgatgcgc 900
133 agctccctgc taagtccaaag aaggggccaga tcatcatcaa cgctgctcgat ggtggccctt 960
134 ttgatgagca ggcttggctt gatgcgattt agtccggcgtt cattcggttgc gctggttcg 1020
135 atgtgtactc caccggacct tgcactgtt ctccttgcgtt caagttgcgtt cagttgttg 1080
136 tgactccctea cttgggtgtt totactgaag aggctcaggatg tgctggcatg actgacgttg 1140
137 ctgattctgtt gctcaaggcg ctggctggcg agttcgttgc ggttgcgtt aacgttccg 1200
138 gtggtcgcgtt gggcgaagag taaggatcc 1229
141 <210> SEQ ID NO: 5
142 <211> LENGTH: 1211
143 <212> TYPE: DNA
144 <213> ORGANISM: Corynebacterium glutamicum
146 <400> SEQUENCE: 5
147 tctagagccg gagacgtgaa taaaattcgc agctcattcc atcagcgtaa acgcagcttt 60
148 ttgcatggtg agacacccctt gggggtaaat ctcacagcat gaatctctgg gttagatgac 120
149 tttctgggtg ggggagggtt tagaatgttt ctatcgac gccaaaaacc ggcgtggaca 180
150 cgtctgcagc cgacgcggtc gtgcctgtt tagacggaca ttccatgttt ttccaggagt 240
151 aacttgtgag ccagaatggc cgtccggtag tcctcatcgc cgataagctt gcgcagtcca 300
152 ctgttgcgc gcttggagat gcagtagaaag tccgttgggt tgacggacct aaccgcccag 360
153 aactgcttga tgcagtttaag gaagcggacg cactgctcgat gcttgcgtt accactgtcg 420
154 atgctgaagt catgcgcgtt gcccctaact tgaagatcgat cggtcggtt ggcgtggct 480
155 tggacaacgt tgacatccct gctgccactg aagctggcgtt catgggttgc aacgcaccga 540
156 cctctaataat tcactccgtt tttgagacgcaat tttcttgcgtt gctgctgtct actgctcgcc 600
157 agatccctgc tgctgtatgcg acgctgcgtt agggcgagtg gaagcggtt tcttcaacg 660
158 gtgtggaaat ttccggaaaa actgtcggtt tcgtcggtt tggccacatt ggtcagttgt 720
159 ttgctcagcg tttgtctgcg tttgagacca ccattgttgc ttacgatccct tacgctaacc 780
160 ctgctcgtgc ggctcagctg aacgttgagt tggttgagtt ggttgcgtt atgagccgtt 840
161 ctgactttgtt caccattcac cttccataaga ccaaggaaac tgctggcatg tttgatgcgc 900
162 agctccctgc taagtccaaag aaggggccaga tcatcatcaa cgctgctcgat ggtggccctt 960

```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/520,999

DATE: 12/08/2005
TIME: 08:23:33

Input Set : A:\ST125.txt
Output Set: N:\CRF4\12082005\J520999.raw

```

163 ttgatgagca ggcttggct gatgcgattg agtcggta cattcgtggc gctggttcg 1020
164 atgtgtactc caccgaggct tgcactgatt ctcccttgc caagttgcct cagttgttg 1080
165 tgactcctca cttgggtgct tctactgaag aggctcagga tcgtgcgggt actgacgttg 1140
166 ctgattctgt gctcaaggcg ctggctggcg agttcgtggc ggatgctgtg aacgttccg 1200
167 gttaaggatc c 1211
170 <210> SEQ ID NO: 6
171 <211> LENGTH: 2043
172 <212> TYPE: DNA
173 <213> ORGANISM: Corynebacterium glutamicum
175 <400> SEQUENCE: 6
176 tcttagagccg gagacgtgaa taaaattcgc agtcattcc atcagcgtaa acgcagcttt 60
177 ttgcattgggt agacacccctt gggggtaaat ctcacagcat gaatctctgg gtagatgac 120
178 tttctgggtg ggggagggtt tagaatgttt ctatcgac gccaacccccc ggcgtggaca 180
179 cgtctgcagc cgacgcggtc gtgcctgtg tagacggaca ttccctagttt ttccaggagt 240
180 aacttgttag ccagaatggc cgtccggtag tcctcatcgc cgataagctt gcgcagtc 300
181 ctgttgacgc gcttggagat gcagtagaaag tccgttgggt tgacggaccc aaccgcggc 360
182 aactgcttga tgcagttaaag gaagcggacg cactgctcg tgcgttctgtt accactgtcg 420
183 atgctgaagt catgcgcgtt gcccctaact tgaagatcg tggcgtgtcc ggcgtggct 480
184 tggacaacgt tgacatccct gctgccactg aagctggcg catggttgt aacgcaccga 540
185 cctctaataat tcactccgtc tgtgagcacg caatttcttt gctgctgtct actgctcgcc 600
186 agatccctgc tgctgatgcg acgctgcgtg agggcgagtg gaagcggtt tcttcaacg 660
187 gtgtggaaat ttccggaaaa actgtcggtt tcgtcggtt tggccacatt ggtcagttgt 720
188 ttgctcagcg tcttgctgcg tttgagacca ccattgtgc ttacgatcc tacgctaacc 780
189 ctgctcgtgc ggctcagctg aacgttgagt tggttgagtt ggatgagctg atgagccgtt 840
190 ctgactttgtt caccattcac ttcccttaaga ccaaggaaac tgctggcatg ttgatgcgc 900
191 agetccttgc taagttcaag aaggccaga tcatacatcaa cgctgctcg ggtggcctt 960
192 ttgatgagca ggcttggct gatgcgattt agtcggta cattcgtggc gctggttcg 1020
193 atgtgtactc caccgaggct tgcactgatt ctcccttgc caagttgcct cagttgttg 1080
194 tgactcctca cttgggtgct tctactgaag aggctcagga tcgtgcgggt actgacgttg 1140
195 ctgattctgt gctcaaggcg ctggctggcg agttcgtggc ggatgctgtg aacgttccg 1200
196 gtggcgcgtt gggcgaagag gttcgtgtt ggatggatct ggctcgcaag ctggcttc 1260
197 ttgctggcaa gcttgcgtc gcccggccag tctccattga ggttggagct cgaggcgagc 1320
198 ttccctccga gcaggcgtat gcaacttgcgt tgcgtggttt tcgtggttt ttcccgaa 1380
199 ttatcgaaga gtccgttact ttcgtcaacg ctccctcgat tgctgaagag cgtggcctgg 1440
200 acatctccgtt gaagaccaac tctgagtcg ttactcaccg ttccgtcctg caggtcaagg 1500
201 tcattactgg cagcggcgcg agcgcaactg ttgttggc cctgactgtt ctggagcgc 1560
202 ttgagaagat caccggcatc aatggccgtg gcctggatct gcgcgcagag ggtctgaacc 1620
203 ttccctgcgtt gtaactgac gtcctgggt cactgggtac cggtggtaacc aagctgggtg 1680
204 ctgctggcat caacatcgat gtcgtgtt tgactcaggc tgagaagggt gacggcgctg 1740
205 tcctgatccat gcgtgttgc tccgtgttct ctgaagagct ggaagctgaa atcaacgctg 1800
206 agttgggtgc tacttccatc cagggttgc ttgactaatt agagatccat ttgcttgaac 1860
207 cgccttccca tctttgaatt cattcaaggt ggtaaggcg ttttcgtctt ttaatacag 1920
208 tttaaaaggtt agatttggga gagaagattt cccttaagaa aggttctaa caaccatgcc 1980
209 gcctgcgacg ctgttcaatg ttttgcattc agctggactt gaccctcacc agtctaagg 2040
210 tcc 2043
213 <210> SEQ ID NO: 7
214 <211> LENGTH: 333
215 <212> TYPE: PRT
216 <213> ORGANISM: Corynebacterium glutamicum

```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/520,999

DATE: 12/08/2005
TIME: 08:23:33

Input Set : A:\ST125.txt
Output Set: N:\CRF4\12082005\J520999.raw

218 <400> SEQUENCE: 7
 219 Met Ser Gln Asn Gly Arg Pro Val Val Leu Ile Ala Asp Lys Leu Ala
 220 1 5 10 15
 222 Gln Ser Thr Val Asp Ala Leu Gly Asp Ala Val Glu Val Arg Trp Val
 223 20 25 30
 225 Asp Gly Pro Asn Arg Pro Glu Leu Leu Asp Ala Val Lys Glu Ala Asp
 226 35 40 45
 228 Ala Leu Leu Val Arg Ser Ala Thr Thr Val Asp Ala Glu Val Ile Ala
 229 50 55 60
 231 Ala Ala Pro Asn Leu Lys Ile Val Gly Arg Ala Gly Val Gly Leu Asp
 232 65 70 75 80
 234 Asn Val Asp Ile Pro Ala Ala Thr Glu Ala Gly Val Met Val Ala Asn
 235 85 90 95
 237 Ala Pro Thr Ser Asn Ile His Ser Ala Cys Glu His Ala Ile Ser Leu
 238 100 105 110
 240 Leu Leu Ser Thr Ala Arg Gln Ile Pro Ala Ala Asp Ala Thr Leu Arg
 241 115 120 125
 243 Glu Gly Glu Trp Lys Arg Ser Ser Phe Asn Gly Val Glu Ile Phe Gly
 244 130 135 140
 246 Lys Thr Val Gly Ile Val Gly Phe Gly His Ile Gly Gln Leu Phe Ala
 247 145 150 155 160
 249 Gln Arg Leu Ala Ala Phe Glu Thr Thr Ile Val Ala Tyr Asp Pro Tyr
 250 165 170 175
 252 Ala Asn Pro Ala Arg Ala Ala Gln Leu Asn Val Glu Leu Val Glu Leu
 253 180 185 190
 255 Asp Glu Leu Met Ser Arg Ser Asp Phe Val Thr Ile His Leu Pro Lys
 256 195 200 205
 258 Thr Lys Glu Thr Ala Gly Met Phe Asp Ala Gln Leu Leu Ala Lys Ser
 259 210 215 220
 261 Lys Lys Gly Gln Ile Ile Asn Ala Ala Arg Gly Gly Leu Val Asp
 262 225 230 235 240
 264 Glu Gln Ala Leu Ala Asp Ala Ile Glu Ser Gly His Ile Arg Gly Ala
 265 245 250 255
 267 Gly Phe Asp Val Tyr Ser Thr Glu Pro Cys Thr Asp Ser Pro Leu Phe
 268 260 265 270
 270 Lys Leu Pro Gln Val Val Val Thr Pro His Leu Gly Ala Ser Thr Glu
 271 275 280 285
 273 Glu Ala Gln Asp Arg Ala Gly Thr Asp Val Ala Asp Ser Val Leu Lys
 274 290 295 300
 276 Ala Leu Ala Gly Glu Phe Val Ala Asp Ala Val Asn Val Ser Gly Gly
 277 305 310 315 320
 279 Arg Val Gly Glu Val Ala Val Trp Met Asp Leu Ala
 280 325 330
 284 <210> SEQ ID NO: 8
 285 <211> LENGTH: 451
 286 <212> TYPE: PRT
 287 <213> ORGANISM: Corynebacterium glutamicum
 289 <400> SEQUENCE: 8
 290 Met Ser Gln Asn Gly Arg Pro Val Val Leu Ile Ala Asp Lys Leu Ala

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/520,999

DATE: 12/08/2005

TIME: 08:23:34

Input Set : A:\ST125.txt

Output Set: N:\CRF4\12082005\J520999.raw

L:11 M:270 C: Current Application Number differs, Replaced Application Number

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date